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### **Manage, monitor, and maintain the valuable business knowledge that forms the core of all Ascent Technology solutions**

The ARIS/SmartBase database is the secure data repository at the core of all Ascent Technology resource-allocation, optimization, and management solutions. It stores information about your human and physical resources, plans, schedules, scenarios, and operations in an extremely reliable and high-availability environment, ensuring that timely and relevant information is always available throughout your organization. It stores your information in a well-engineered relational format, using English-language table and column names, ensuring information is readily available for reporting, auditing, and analysis purposes and for export to external systems.

In its knowledge repository, the ARIS/SmartBase database maintains the flexible business rules that control the creation of what-if scenarios, plans, schedules, and real-time responses to planned and unplanned events. In its historical archive, the ARIS/SmartBase database stores accurate records of resources, plans, schedules, operations, and events for use in management reports and analyses.

The ARIS/SmartBase database enables you to:

- Enter information about resources, plans, schedules, operations, and events into one ARIS® product and share it with the rest of the SmartAirline Operations Center™ solution, the SmartAirport Operations Center™ solution, or the Ascent WorkZone® workforce-management system automatically in near real time
- Gain access to a comprehensive, integrated, up-to-the-minute view of your organization's resource, plan, schedule, and operations information
- Export data to external systems and import data from external systems
- Maintain an accurate and consistent data repository for reporting, auditing, and analysis
- Maintain multiple versions of plans and what-if scenarios for evaluation

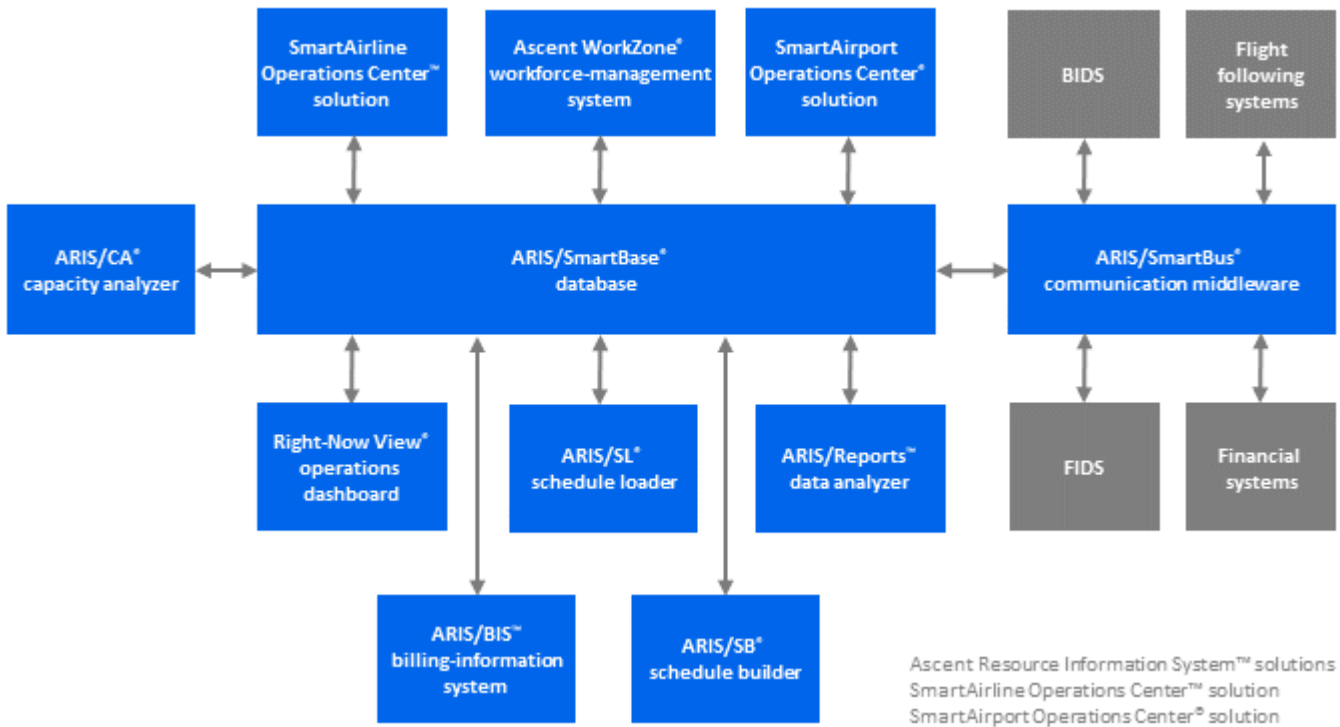
- Improve collaborative decision-making and overall organizational effectiveness by ensuring everyone in your organization has timely access to the same resource, plan, schedule, and day-of-operation information

Because the ARIS/SmartBase database coordinates the actions of all other ARIS products in your solution, when you enter information into one ARIS product, the information is available to all other ARIS products in seconds. When used in combination with the ARIS/SmartBus® communication middleware, the ARIS/SmartBase database simplifies importing information from and exporting information to your organization's other systems.

### Ensures a coordinated view of business knowledge

The ARIS/SmartBase database provides a bridge between planners, schedules, and day-of-operations managers. Planners use ARIS products to create plans, storing plan information in the ARIS/SmartBase database, where it is picked up by other ARIS products when scheduling and managing resources and events in actual operations. The ARIS/SmartBase database enables planners' decisions to guide day-of-operations managers' decisions by providing a coordinated view of resources, plans, schedules, and assumptions.

The ARIS/SmartBase database is an enterprise-wide solution; you can use a single database across your entire organization, which means that headquarters' managers can establish consistent guidelines for subsidiary locations. You can adjust guidelines for each subsidiary location and maintain consistency. You can also roll-up subsidiary information to create high-level plans and historical reports.



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## Who we are

Since our founding more than 35 years ago by members of the Massachusetts Institute of Technology Artificial Intelligence Laboratory, Ascent Technology has helped organizations deploy costly resources as efficiently, effectively, and economically as possible. Our highly trained and capable team of technologists, problem solvers, and solution designers has broad domain expertise and substantial experience in artificial intelligence, computer science and engineering, system design, mathematical optimization, operations research, and resource optimization, planning, scheduling, and management.

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## Ensures rapid and secure dissemination of information

The ARIS/SmartBus communication middleware, the technology layer that surrounds the ARIS/SmartBase database, enables secure information exchange between the ARIS/SmartBase database and external systems, such as finance, human resources, and payroll systems, and between the ARIS/SmartBase database and mobile pagers, tablets, smart phones, and other devices. Special mechanisms continuously monitor information, identify alerts and changes to operational conditions, and notify relevant staff.

## Ensures high performance and reliability

Because the ARIS/SmartBase database runs on the Oracle® database system, it provides the benefits of Oracle database systems, such as:

- An extremely reliable data-storage environment that prevents information corruption
- Compatibility with numerous software products, report generators, software-development tools, and interface tools
- A wide range of options for processor sizing and fault tolerance
- A wide range of back-up and recovery solutions to ensure no information is lost in the event of hardware or software failure

The ARIS/SmartBase database exploits the high-performance capabilities of the Oracle database, providing outstanding performance in complex environments and ensuring smooth operation during demanding situations.

## Representative features

**Provides a consistent view of operations across the enterprise.** Information stored in the ARIS/SmartBase database is valid, accurate, consistent, and updated in near real time. Everyone in your organization can have access to up-to-the-minute information.

**Follows a relational database model.** The ARIS/SmartBase database follows the SQL relational database model. It is simple to understand, and it can be mastered easily, even by non-programmers. It is flexible, which makes it possible to retrieve information with minimal effort.

**Runs on the Oracle database system.** The ARIS/SmartBase database runs on the leading information-management software product. Hundreds of third-party tools operate with the Oracle database system to, for example, format reports, exchange information, and post information to web sites.

**Integrates with external systems and web services.** The ARIS/SmartBase database operates with the ARIS/SmartBus communication middleware, which simplifies data exchange between the ARIS/SmartBase database and external systems. The ARIS/SmartBus communication middleware generates logs of all inbound and outbound data transfers, greatly simplifying error tracking. Because messages are transmitted using industry-standard protocols, they can be exchanged with and understood by other applications easily.

**Maintains enterprise-wide business knowledge in a secure repository.** The ARIS/SmartBase database models your business processes as rules entered by means of an easy-to-use forms-based interface. Other ARIS products rely on the business rules to

drive planning and operational actions. Information and rules are stored in a single database, providing consistent operations at all locations.

**Provides powerful embedded resource-editing tools for entering and maintaining the knowledge base.** The ARIS/SmartBase database contains several intuitive, easy-to-use editing tools, such as the Location Editor™ tool, Profile Editor™ tool, Reference Editor™ tool, Rule Editor™, User Editor™ tool, and Worker Editor™ tool, that enable you to maintain your knowledge base without programming.

**Provides multiple layers of security.** The Oracle database system provides both deep data protection and fine-grained access control. The ARIS/SmartBase database maintains audit trails of modifications made to stored data, such as the type of data modified, the data prior to modification, the modified data, the time of modification, and the reason for modification. In addition, the ARIS/SmartBase database provides partitioning to ensure the privacy of specific processed data.

**Scalability and availability.** The Oracle database provides transparent scalability when you move ARIS products from a single server to a cluster of servers, scalability with availability when machines in a cluster act as backup machines for all other machines in the cluster, and scalable performance at all hardware ranges.

**High performance.** The indices associated with each table and clustering in the ARIS/SmartBase database have been carefully tuned to provide high performance in environments where the number of users ranges from just a few to thousands.

**Maintains historical information archive.** The ARIS/SmartBase database maintains a secure archive of historic planning and operations data you can use to produce accurate and timely reports and to define and analyze key performance metrics. You can perform nightly updates of the archive or you can perform updates in real time, which provides immediate access to today's information for reporting. Careful database engineering ensures activities can extend across the midnight boundary into the next calendar day with no loss of data, possible confusion, or need to interrupt the applications. Using the scenario feature, you can reload the specific model that was active at the time the historical data were created.

**Collaborative decision-making.** The ARIS/SmartBase database supports team decision-making, ensuring all users share a consistent current view of operations. You can discuss possible solutions with other users before you commit to changes.

**Web-enabled for cost-effective rapid and wide deployment.** You gain access to the ARIS/SmartBase database through Ascent's From Touchdown to Takeoff® cloud-hosted service, a secure, highly-available, and readily-expandable platform. When you subscribe to the service, you can gain access Ascent's entire suite of products, including the ARIS/SmartBase database, using a standard browser directly from your network without any need to install, maintain, and support on-premise hardware and software. We can readily adjust available computing power to meet your organization's changing needs, and you can easily expand your solution to accommodate additional users and to manage additional resources, facilities, and locations.

## Ways we can help you

**Advisory and consulting services.** We provide unbiased advice about resource allocation, optimization, planning, scheduling, management, and deployment methodologies; develop cost-benefit analyses; analyze business processes; manage projects; gather and document technical requirements; develop functional specifications; and specify hardware, software, and devices.

**Project-management services.** Our project-management team works closely with you, following our time-proven delivery methodology, and uses face-to-face meetings, teleconferences, web conferences, and email exchanges to keep you informed every step of the way. We believe careful project management is the key to successful on-time and on-budget deliveries of Ascent Technology's SmartAirline Operations Center solution and SmartAirport Operations Center solution.

**Knowledge-engineering services.** Knowledge engineering is the process of identifying your business knowledge—the business rules, policies, procedures, preferences, and requirements that guide the way your organization operates—and then codifying your business knowledge in the knowledge base at the heart of the SmartAirline Operations Center solution and SmartAirport Operations Center solution. The business knowledge in the knowledge base determines how the solutions behave. Our knowledge engineers work with you to gather and enter the business knowledge that enables the solution to behave exactly the way you want it to.

**Implementation, integration, and installation services.** Our implementation team provides system integration and testing services; develops product extensions, enhancements, and connectivity software for importing data to and exporting data from external systems; and creates reports. Our implementation team is also responsible for setting up an environment, customized to meet your organization's needs, and monitoring its performance, in our secure hosting center.

**Training services.** We provide a wide range of user, administrator, trainer, and refresher training classes at your location, at our Boston, MA, headquarters, and remotely over the web. We also provide operational training services remotely when you begin to use the SmartAirline Operations Center solution or the SmartAirport Operations Center solution in production.

**Maintenance and support services.** We offer premium support services for the SmartAirline Operations Center solution and the SmartAirport Operations Center solution around the clock. We provide comprehensive remote user support services via telephone, email, web conferences, and Internet, as well as software maintenance, such as product updates, patches, and releases. Our customer support community portal and ticket system enable you to ask questions and receive responses, request service, report problems, and track issues day and night.

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### More information

To learn more about how Ascent Technology solutions can help you optimize your resources to greatest advantage and to schedule a demonstration of our products, send email to [sales@ascent.com](mailto:sales@ascent.com) or call our Sales and Marketing department at +1.617.395.4800.

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## Ascent Technology's From Touchdown to Takeoff Cloud-Hosted Service

You gain access to the Ascent Resource Information System solutions in the SmartAirline Operations Center solution and in the SmartAirport Operations Center solution over the Internet, using a standard web browser.

Ascent Resource Information System solutions SmartAirline Operations Center solution SmartAirport Operations Center solution	From Touchdown to Takeoff cloud-hosted service Browser support: Google Chrome, Microsoft Edge, and Mozilla Firefox Minimum Internet connection speed: 5 Mbps Minimum resolution: Full HD (FHD)
ARIS/AV <sup>®</sup> aerial-view display	✓
ARIS/BB <sup>®</sup> baggage-belt allocator	✓
ARIS/BIS <sup>™</sup> billing-information system	✓
ARIS/CA <sup>®</sup> capacity analyzer	✓
ARIS/CI <sup>®</sup> check-in counter allocator (with ARIS/IQ <sup>®</sup> queue manager)	✓
ARIS/FW <sup>®</sup> flight watcher	✓
ARIS/GateView <sup>®</sup> real-time display	✓
ARIS/GM <sup>®</sup> gate manager	✓
ARIS/Reports <sup>™</sup> data analyzer	✓
ARIS/SB <sup>®</sup> schedule builder	✓
ARIS/SL <sup>®</sup> schedule loader	✓
ARIS/SmartBase <sup>®</sup> database (with Resource Editor tools)	✓
ARIS/SmartBus <sup>®</sup> communication middleware	✓
ARIS/SP <sup>®</sup> stand planner	✓
Ascent WorkZone <sup>®</sup> workforce manager	✓
ARIS/WorkModel <sup>®</sup> workload generator	✓
ARIS/WorkNet <sup>®</sup> bid and trade manager	✓ *
ARIS/WorkOptimize <sup>®</sup> work-period generator	✓
ARIS/WorkPlan <sup>®</sup> work-schedule generator	✓
ARIS/WorkRelay <sup>®</sup> task and attendance monitor	✓
ARIS/WorkTime <sup>®</sup> workday manager	✓
Right-Now View <sup>®</sup> operations dashboard	✓
ARIS/CX <sup>®</sup> crew-connection analyzer	✓
ARIS/FR <sup>®</sup> flight-readiness display	✓
ARIS/PX <sup>®</sup> passenger-connection analyzer	✓
ARIS/TE <sup>®</sup> tug-equipment assigner	✓
Gate Chart Display <sup>™</sup> tool	✓
Stand Assignment Optimizer <sup>™</sup> tool	✓

\* Minimum requirements: 512 Kbps Internet connection speed and SXGA resolution

ARIS ARIS/AR ARIS/AV ARIS/BB ARIS/CA ARIS/CI ARIS/CX ARIS/FW ARIS/GateView ARIS/GM ARIS/IQ ARIS/LegGen ARIS/PA ARIS/PX ARIS/SA ARIS/SB ARIS/SE ARIS/SL ARIS/SmartBase ARIS/SmartBus ARIS/SP ARIS/TE ARIS/Tow Panel ARIS/WorkModel ARIS/WorkNet ARIS/WorkOptimize ARIS/WorkPlan ARIS/WorkRelay ARIS/WorkTime Ascent Resource Information System Ascent Technology Inc. (stylized) Ascent WorkZone Ascent WorkZone (stylized) From Touchdown to Takeoff GateKeeper Right-Now View SmartAirline SmartAirline Capacity Analyzer (stylized) SmartAirline Information Manager (stylized) SmartAirline Operations Manager (stylized) SmartAirline WorkZone SmartAirline WorkZone (stylized) SmartAirport Smartairport.com SmartAirport Capacity Analyzer SmartAirport Capacity Analyzer(stylized) SmartAirport Information Manager SmartAirport Information Manager(stylized) SmartAirport Operations SmartAirport Operations Center SmartAirport Operations Manager SmartAirport Operations Manager (stylized) SmartAirport WorkZone and SmartAirport WorkZone (stylized) are registered trademarks of Ascent Technology Inc. in the United States.

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